

PROGRAM COST MODEL

for

PEER Tall Buildings Study Steel Structural Option Los Angeles, California

March 8, 2010

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OVERALL SUMMARY

	Gross Floor		
	Area	\$ / SF	\$x1,000
Construction Cost (Including Design)			
Code Based	959,110 SF	369.76	354,636
Performance Based	959,110 SF	354.02	339,546
Performance Based Plus	959,110 SF	359.97	345,251
FF&E Cost		50.00	00.400
Furniture & Fittings, including system furniture	763,350 SF	50.00	38,168
Equipment, including computer systems	763,350 SF	35.00	26,717
Personal Property			
Personal Contents	763,350 SF	2.00	1,527
Cars in parking (Maximum count)	490 EA	25,000.00	12,250

Please refer to the Inclusions and Exclusions sections of this report

Program Cost Model March 8, 2010 012-01581.110

AREAS & CONTROL QUANTITIES

Areas			
	SF	SF	SF
Enclosed Areas			
Basement Levels B1 - B4	199,760		
Ground Level	49,940		
Levels 1 - 10	181,900		
Levels 11 - 39	527,510		
SUBTOTAL, Enclosed Area		959,110	
Covered area			
SUBTOTAL, Covered Area @ 1/2 Value			

TOTAL GROSS FLOOR AREA

959,110

Control Quantities

			Ratio to Gross Area
Number of stories (x1,000)	44	EA	0.046
Gross Area	959,110	SF	1.000
Enclosed Area	959,110	SF	1.000
Covered Area	(SF	0.000
Footprint Area	49,940	SF	0.052
Volume	12,301,575	6 CF	12.826
Basement Volume	2,397,120) CF	2.499
Gross Wall Area	344,565	SF	0.359
Retaining Wall Area	42,912	SF	0.045
Finished Wall Area	301,653	SF	0.315
Windows or Glazing Area	21.89% 75,414	SF	0.079
Roof Area - Flat	49,940	SF	0.052
Roof Area - Sloping	(SF	0.000
Roof Area - Total	49,940	SF	0.052
Roof Glazing Area	(SF	0.000
Interior Partition Length	58,608	5 LF	0.061
Finished Area	959,110	SF	1.000
Elevators (x10,000)	E	6 EA	0.063
Plumbing Fixtures (x1,000)	924	EA	0.963
Electrical Load	12,000) KW	12.512

CODE BASED COMPONENT SUMMARY

	Gross Area:	959,110 SF \$/SF	\$x1,000
1. Foundations 2. Vertical Structure		19.53 57.00	18,730 54,668
3. Floor & Roof Structures		26.34	25,262
4. Exterior Cladding		42.43	40,697
5. Roofing, Waterproofing & Skylights		2.63	2,526
Shell (1-5)		147.93	141,884
6. Interior Partitions, Doors & Glazing		10.18	9,760
7. Floor, Wall & Ceiling Finishes		13.93	13,358
Interiors (6-7)		24.10	23,119
8. Function Equipment & Specialties		9.87	9,471
9. Stairs & Vertical Transportation		9.99	9,584
Equipment & Vertical Transportation (8-9)		19.87	19,055
10 Plumbing Systems		6.12	5,872
11 Heating, Ventilating & Air Conditioning		29.23	28,033
12 Electric Lighting, Power & Communications		23.64	22,670
13 Fire Protection Systems		5.26	5,046
Mechanical & Electrical (10-13)		64.25	61,621
Total Building Construction (1-13)		256.15	245,679
14 Site Preparation & Demolition		1.56	1,500
15 Site Paving, Structures & Landscaping		1.30	1,252
16 Utilities on Site		0.52	500
Total Site Construction (14-16)		3.39	3,252
TOTAL BUILDING & SITE (1-16)		259.54	248,930
General Conditions	12.00%	31.15	29,872
Contractor's Overhead & Profit or Fee	6.00%	17.44	16,728
PLANNED CONSTRUCTION COST	March 2010	308.13	295,530
Design, Management and Inspection	20.00%	61.63	59,106
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET	March 2010	369.76	354,636

PEER Tall Buildings Study Steel Structural Option Code Based Los Angeles, California			/	n Cost Model March 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
1. Foundations				
Mass excavation Excavate for basement and mat foundation Shoring at perimeter Backfill with imported material Dispose off site Hazardous material remediation	140,778 53,640 29,802 140,778	CY SF CY CY	15.00 50.00 35.00 20.00	2,111,670 2,682,000 1,043,070 2,815,560 Excluded
Foundations Reinforced concrete mat foundation, 12'-0" Elevator pits	49,940 6	SF EA	200.00 15,000.00	9,988,000 90,000
_				18,730,300
2. Vertical Structure				
Columns and pilasters Wide flange Box columns	880	TN	4,000.00	3,520,000
Metal plate frame Studs- 3/4" diameter, 6" long Concrete fill Sprayed fireproofing	5,436 101,088 3,101 880	TN EA CY TN	6,000.00 60.00 450.00 350.00	32,616,000 6,065,280 1,395,450 308,000
Diagonal reinforcing Buckling restraint braces				
1026 k 950 k 703 k 589 k 532 k 513 k 418 k 380 k 342 k 304 k 266 k 228 k Brace connections Gusset plates 3/4" thick plate steel welded connection	1,368 1,260 902 7,326 912 6,516 608 960 836 720 1,252 380	LF LF LF LF LF LF LF LF EA	300.00 225.00 180.00 150.00 150.00 120.00 120.00 120.00 120.00 100.00 100.00	410,400 283,500 162,360 1,098,900 136,800 977,400 72,960 115,200 100,320 86,400 125,200 38,000
1" thick plate steel welded connection 2" thick plate steel welded connection 2" thick plate steel welded connection	1,916 232	EA EA EA	2,000.00 4,000.00	3,832,000 928,000

PEER Tall Buildings Study Steel Structural Option Code Based Los Angeles, California			Λ	n Cost Model Iarch 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
Concrete retaining walls				
18" Concrete retaining wall	04 450	05	45.00	004.040
Formwork to one side	21,456	SF	15.00	321,840
Reinforcing steel	283,824	LBS	1.15	326,398
Concrete	1,311	CY	225.00	294,975
24" Concrete retaining wall	04 450	05	45.00	004.040
Formwork to one side	21,456	SF	15.00	321,840
Reinforcing steel	422,059	LBS	1.15	485,368
Concrete	1,748	CY	225.00	393,300
—				54,667,890
3. Floor and Roof Structure				
Floor at lowest level				
Slab on grade - See foundations (mat slab)				
Suspended floors				
Wide flange framing	3,359	ΤN	4,000.00	13,436,000
Channel and angle ledger	101,965	LBS	2.50	254,913
3" formlock deck, 18 ga.	859,230	SF	4.50	3,866,535
3 1/4" lightweight concrete	859,230	SF	5.00	4,296,150
Sprayed fireproofing	3,359	ΤN	350.00	1,175,650
Plaza level slab/roof				
Wide flange framing	295	ΤN	4,000.00	1,180,000
Channel and angle ledger	33,988	LBS	2.50	84,970
3" formlock deck, 16 ga.	49,940	SF	4.50	224,730
9" normal weight concrete	49,940	SF	5.00	249,700
Sprayed fireproofing	295	ΤN	350.00	103,250
High roof				
Wide flange framing	50	ΤN	4,000.00	200,000
3" formlock deck, 18 ga.	18,190	SF	4.50	81,855
3 1/4" lightweight concrete	18,190	SF	5.00	90,950
Sprayed fireproofing	50	ΤN	350.00	17,500

25,262,203

PEER Tall Buildings Study Steel Structural Option Code Based Los Angeles, California				n Cost Model March 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
4. Exterior Cladding				
Wall framing, furring and insulation Exterior wall framing Furring to interior face of retaining wall Insulation and vapor barrier	301,653 42,912 226,240	SF SF SF	8.00 4.00 1.50	2,413,224 171,648 339,360
Applied exterior finishes Exterior wall finish - curtain wall with spandrel panels Parapets & edge detailing	226,240 554	SF LF	120.00 250.00	27,148,800 138,500
Interior finish to exterior walls Gypsum board, taped and sanded	269,152	SF	3.50	942,032
Windows, glazing and louvers Exterior wall finish - curtain wall with glazing	75,414	SF	120.00	9,049,680
Exterior doors, frames and hardware Glazed Doors & Entrances (allow revolving) Solid Exterior Doors Overhead Doors	12 8 2	EA EA EA	35,000.00 3,000.00 25,000.00	420,000 24,000 50,000 40,697,244
5. Roofing, Waterproofing & Skylights				
Waterproofing Waterproofing at slab on grade Waterproofing at retaining wall Waterproofing membrane under plaza	49,940 42,912 31,750	SF SF SF	10.00 10.00 15.00	499,400 429,120 476,250
Roof insulation Rigid insulation at roof	18,190	SF	6.00	109,140
Roofing Balconies & accessible roofs High roof	31,750 18,190	SF SF	25.00 12.00	793,750 218,280
—				2,525,940

2,525,940

PEER Tall Buildings Study Steel Structural Option Code Based Los Angeles, California			Ī	n Cost Model Iarch 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
6. Interior Partitions, Doors & Glazing				
Partition framing and cores CMU partitions at basement levels Core partitions Standard partitions	400 7,276 50,932	LF LF LF	325.00 90.00 72.00	130,000 654,840 3,667,104
Window walls and borrowed lights	1,020	SF	45.00	45,900
Doors, frames & hardware Interior doors	2,392	EA	2,200.00	5,262,400
_				9,760,244
7. Floor, Wall & Ceiling Finishes				
Floors including base Lobby flooring Core circulation Restrooms Office Special use areas Concrete sealer at basement	5,000 88,000 44,000 616,350 10,000 195,760	SF SF SF SF SF	35.00 6.00 15.00 5.00 10.00 2.00	175,000 528,000 660,000 3,081,750 100,000 391,520
Walls Lobby Core circulation Restroom walls Office Special use areas Paint to concrete and CMU at basement	1 176,000 79,200 739,620 15,000 52,512	EA SF SF SF SF	75,000.00 3.00 15.00 1.50 5.00 1.00	75,000 528,000 1,188,000 1,109,430 75,000 52,512
Ceilings Lobby Core circulation Restrooms Office Special use areas Paint to exposed structure at basement	5,000 88,000 44,000 616,350 10,000 195,760	SF SF SF SF SF	25.00 12.00 15.00 5.00 8.00 2.00	125,000 1,056,000 660,000 3,081,750 80,000 391,520

13,358,482

PEER Tall Buildings Study Steel Structural Option Code Based Los Angeles, California			Ī	n Cost Model Iarch 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
8. Function Equipment & Specialties				
Built in Equipment Lobby/entry Core area Office areas Restroom areas Window washing equipment	1 40 616,350 44,000 1	LS EA SF SF LS	25,000.00 18,000.00 12.00 20.00 450,000.00	25,000 720,000 7,396,200 880,000 450,000 9,471,200
9. Stairs & Vertical Transportation				
Stairs Regular stair flights	88	EA	22,000.00	1,936,000
Elevators Passenger Elevators, gearless traction Freight Elevators, geared traction, 4 stop	264	STOP	28,000.00	7,392,000
r leight Lievalors, geared traction, 4 stop	8	STOP	32,000.00	256,000
				9,584,000
10. Plumbing Systems				
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs	440 88 264 44 44 44	EA EA EA EA EA	1,600.00 1,800.00 1,200.00 2,500.00 1,700.00 500.00	704,000 158,400 316,800 110,000 74,800 22,000
Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service	1,300 13,860	LF LF	50.00 32.00	65,000 443,520
Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Insulation Valves	2,600 27,720 30,320	LF LF LF	50.00 32.00 9.00	130,000 887,040 272,880
Isolation valves to 3/4" Domestic Water Supply Equipment Hot water heating and circulation	1,232 1	EA LS	65.00 200,000.00	80,080 200,000

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Item Description	Quantity	Unit	Rate	Total
Sanitary waste				
Waste & vent pipework-above ground				
Cast Iron No Hub, >6"	1,300	LF	75.00	97,50
Cast Iron No Hub, to 3"	13,860	LF	32.00	443,52
Sanitary waste, vent and service piping				
Floor Drains	88	EA	1,000.00	88,00
Rain Water Drainage				
Pipe and Fittings	47,609	LF	35.00	1,666,33
Roof/Overflow Drains	83	EA	750.00	62,42
Gas distribution				
Copper piping incl. fittings to 2"	2,000	LF	25.00	50,00
				5,872,29
Heating, Ventilation & Air Conditioning				
Heating, Ventilation & Air Conditioning Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps	43,200 2	MBTH EA	25.00 35,000.00	1,080,00 70,00
Heat generating systems Heating hot water boilers, high efficiency condensing				
Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps				70,00
Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems	2	EA	35,000.00	70,00
Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers	3,000	EA TN	35,000.00 350.00	70,00 1,050,00 1,650,00
Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps	2 3,000 3,000	EA TN TN	35,000.00 350.00 550.00	70,00 1,050,00 1,650,00 60,00
Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps	2 3,000 3,000 2 2	EA TN TN EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps	2 3,000 3,000 2	EA TN TN EA	35,000.00 350.00 550.00 30,000.00	70,00 1,050,00 1,650,00 60,00 56,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, 	2 3,000 3,000 2 2	EA TN TN EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. 	2 3,000 3,000 2 2	EA TN TN EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation 	2 3,000 3,000 2 2	EA TN EA EA EA	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water 	2 3,000 3,000 2 2 6	EA TN EA EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00 12,000.00	
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water pipework, fittings Valves and specialties Heating hot water 	2 3,000 3,000 2 2 6 1,400	EA TN EA EA EA	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, 	2 3,000 3,000 2 2 6 1,400	EA TN EA EA EA	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 56,00 72,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, including insulation 	2 3,000 3,000 2 2 6 1,400 1	EA TN EA EA LF LS	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 56,00 72,00 133,00 75,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation 6" - 4" 	2 3,000 3,000 2 2 6 1,400 1 1,200	EA TN EA EA LF LS	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 56,00 72,00 133,00 75,00
 Heat generating systems Heating hot water boilers, high efficiency condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, including insulation 	2 3,000 3,000 2 2 6 1,400 1	EA TN EA EA LF LS	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00

R Tall Buildings Study Steel Structural Option e Based Angeles, California			Ŭ N	1 Cost Mod Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
Condenser water				
Condenser water pipework, fittings	1,200	LF	90.00	108,00
Valves and specialties	1	LS	25,000.00	25,00
Connections to VAV boxes	1,517	EA	350.00	531,03
Air handling equipment				
Air handler units	700,000	CFM	5.00	3,500,00
VAV boxes				
Core/Shell	294	EA	1,250.00	367,50
Tenant areas, 1 per 600 USF	1,027	EA	1,250.00	1,284,06
Parking area	196	EA	1,250.00	245,00
Sound attenuation - duct mounted	700,000	CFM	0.25	175,00
Air distribution, return and exhaust				
Galvanized sheet metal ductwork	959,110	LB	8.00	7,672,88
Flexible ductwork	36,000	LF	6.00	216,00
Dampers, volume	750	EA	40.00	30,00
Dampers, smoke/fire	80	EA	1,200.00	96,00
Insulation/duct liner	400,000	SF	2.50	1,000,00
Diffusers, registers and grilles				
Ceiling				
Core/Shell	1,470	EA	200.00	294,00
Tenant areas, 1 per 150 USF Parking area	4,109	EA	150.00	616,35
Terminal & Package Units				
Exhaust fans to toilet rooms etc.	1	LS	300,000.00	300,00
Controls and instrumentation				
DDC Control system	959,110	SF	5.00	4,795,55
Test and balance				
Test and balance	959,110	SF	1.25	1,198,88
				28,033,26

PEER Tall Buildings Study Steel Structural Option

Program Cost Model

PEER Tall Buildings Study Steel Structural Option Code Based Los Angeles, California			- M	Cost Mode Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
2. Electrical Lighting, Power & Communication				
Primary Service, Medium voltage				
Switchgear 13.8KV including (2) tie	40.000			700.000
breakers, (2) feeder breakers, and customer Transformer substation 13.8KV/480V,	12,000	KVA	60.00	720,000
double-ended including secondary	12,000	KVA	150.00	1,800,00
Distribution switchboards - 480V	12,500	AMP	40.00	500,00
Distribution panelboards - 480V	4,000	AMP	25.00	100,00
Transformers 480/120V	3,000	KVA	75.00	225,00
Distribution panelboards - 208V	8,000	AMP	25.00	200,00
Feeder conduit and wire - 600V	2,000	LF	120.00	240,00
Emergency and Uninterrupted Power				
Emergency Generator	1,500	KVA	350.00	525,00
Automatic transfer switch	1,500	AMP	45.00	67,50
Distribution panelboards	1,500	AMP	25.00	37,50
General Purpose Lighting				
Panelboards	44	EA	2,500.00	110,00
		LA	2,300.00	110,00
Lighting Core Area	147,000	SF	12.00	1,764,00
Tenant Area Parking area	616,350 195,760	SF SF	6.00 4.00	3,698,10 783,04
Machine and Equipment Dewer				
Machine and Equipment Power Connections and switches including conduit				
•				
and wire	16		1 000 00	16.00
Elevators	16 2	EA	1,000.00	16,00
Cooling towers		EA	5,000.00	10,00
Chillers	2	EA	12,000.00	24,00
Pumps	6	EA	2,000.00	12,00
Miscellaneous connections	959,110	SF	0.75	719,33
User Convenience Power	-			
Panelboards	88	EA	2,500.00	220,00
Receptacles		~ -		
Core/Shell	147,000	SF	3.00	441,00
Tenant Area	616,350	SF	5.00	3,081,75
Parking area	195,760	SF	2.00	391,52
Communications				
Telephone and communications				
Core Area, panels and backbone only	1	LS	75,000.00	75,00
Tenant Area	616,350	SF	3.00	1,849,050

PEER Tall Buildings Study Steel Structural Option Code Based Los Angeles, California				n Cost Model March 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
Security Systems Security System	959,110	SF	2.00	1,918,220
Fire Alarm Systems Fire Alarm Systems	959,110	SF	3.00	2,877,330
Other Electrical Systems Grounding Systems Lightning protection	959,110 1	SF LS	0.25 25,000.00	239,778 25,000
-				22,670,120
13. Fire Protection Systems				
Sprinkler and Standpipe Systems Fire Protection Sprinkler Systems Standpipe and Hose Systems	959,110 959,110	SF SF	4.00 1.00	3,836,440 959,110
Specialties and Other Systems Smoke Evacuation	1	LS	250,000.00	250,000
-				5,045,550
14. Site Preparation & Building Demolition				
Site Preparation	100,000	SF	15.00	1,500,000
-				1,500,000
15. Site Paving, Structures & Landscaping				
Site Development	50,060	SF	25.00	1,251,500
-				1,251,500
16. Utilities on Site				
Site Utilities	1	LS	500,000.00	500,000
-				500,000

PERFORMANCE BASED COMPONENT SUMMARY

	Gross Area:	959,110 SF \$/SF	\$x1,000
1. Foundations		17.93	17,193
2. Vertical Structure		48.39	46,414
3. Floor & Roof Structures		25.49	24,449
4. Exterior Cladding		42.43	40,697
5. Roofing, Waterproofing & Skylights		2.63	2,526
Shell (1-5)		136.88	131,279
6. Interior Partitions, Doors & Glazing		10.18	9,760
7. Floor, Wall & Ceiling Finishes		14.34	13,751
Interiors (6-7)		24.51	23,512
8. Function Equipment & Specialties		9.48	9,090
9. Stairs & Vertical Transportation		9.99	9,584
Equipment & Vertical Transportation (8-9)		19.47	18,674
10. Plumbing Systems		6.12	5,872
11. Heating, Ventilating & Air Conditioning		29.23	28,033
12. Electric Lighting, Power & Communications		23.64	22,670
13. Fire Protection Systems		5.26	5,046
Mechanical & Electrical (10-13)		64.25	61,621
Total Building Construction (1-13)		245.11	235,086
14. Site Preparation & Demolition		1.56	1,500
15. Site Paving, Structures & Landscaping		1.30	1,252
16. Utilities on Site		0.52	500
Total Site Construction (14-16)		3.39	3,252
TOTAL BUILDING & SITE (1-16)		248.50	238,338
General Conditions	12.00%	29.82	28,601
Contractor's Overhead & Profit or Fee	6.00%	16.70	16,016
PLANNED CONSTRUCTION COST	March 2010	295.02	282,955
Design, Management and Inspection	20.00%	59.00	56,591
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET	March 2010	354.02	339,546

PEER Tall Buildings Study Steel Structural Option Performance Based Los Angeles, California			Ī	n Cost Model March 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
1. Foundations				
Mass excavation Excavate for basement and Mat foundation Shoring at perimeter Backfill with imported material Dispose off site Hazardous material remediation	136,085 51,852 28,807 136,085	CY SF CY CY	15.00 50.00 35.00 20.00	2,041,275 2,592,600 1,008,233 2,721,700 Excluded
Foundations Reinforced concrete Mat foundation, 10'-0" Elevator pits	49,940 6	SF EA	175.00 15,000.00	8,739,500 90,000
_				17,193,308
2. Vertical Structure				
Columns and pilasters Wide flange	989	TN	4,000.00	3,956,000
Box columns Metal plate frame Studs- 3/4" diameter, 6" long Concrete fill Sprayed fireproofing	4,533 85,200 2,465 989	TN EA CY TN	6,000.00 60.00 450.00 350.00	27,198,000 5,112,000 1,109,250 346,150
Diagonal reinforcing Buckling restraint braces				
703 k 589 k 532 k 513 k 418 k 342 k 304 k 266 k 228 k Brace connections	850 288 912 926 3,402 11,236 720 872 988	LF LF LF LF LF LF LF	$180.00 \\ 150.00 \\ 150.00 \\ 150.00 \\ 120.00 \\ 120.00 \\ 120.00 \\ 100.00 \\ 100.00$	153,000 43,200 136,800 138,900 408,240 1,348,320 86,400 87,200 98,800
Gusset plates 3/4" thick plate steel welded connection 1" thick plate steel welded connection	192 1,880	EA EA	1,500.00 2,000.00	288,000 3,760,000

PEER Tall Buildings Study Steel Structural Option Performance Based Los Angeles, California			Λ	n Cost Model March 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
Concrete retaining walls				
18" Concrete retaining wall				
Formwork to one side	21,456	SF	15.00	321,840
Reinforcing steel	283,824	LBS	1.15	326,398
Concrete	1,311	CY	225.00	294,975
24" Concrete retaining wall		~-		
Formwork to one side	21,456	SF	15.00	321,840
Reinforcing steel	422,059	LBS	1.15	485,368
Concrete	1,748	CY	225.00	393,300
-				46,413,980
3. Floor and Roof Structure				
Floor at lowest level				
Slab on grade - See foundations (mat slab)				
Suspended floors				
Wide flange framing	3,144	ΤN	4,000.00	12,576,000
Channel and angle ledger	101,965	LBS	2.50	254,913
3" formlock deck, 18 ga.	859,230	SF	4.50	3,866,535
3 1/4" lightweight concrete	859,230	SF	5.00	4,296,150
Sprayed fireproofing	3,144	ΤN	350.00	1,100,400
Plaza level slab/roof				
Wide flange framing	311	ΤN	4,000.00	1,244,000
Channel and angle ledger	33,988	LBS	2.50	84,970
3" formlock deck, 16 ga.	49,940	SF	4.50	224,730
9" normal weight concrete	49,940	SF	5.00	249,700
Sprayed fireproofing	311	ΤN	350.00	108,850
High roof				
Wide flange framing	62	ΤN	4,000.00	248,000
3" formlock deck, 18 ga.	18,190	SF	4.50	81,855
3 1/4" lightweight concrete	18,190	SF	5.00	90,950
Sprayed fireproofing	62	ΤN	350.00	21,700
_				

24,448,753

PEER Tall Buildings Study Steel Structural Option Performance Based Los Angeles, California			Λ	n Cost Model March 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
4. Exterior Cladding				
Wall framing, furring and insulation Exterior wall framing Furring to interior face of retaining wall Insulation and vapor barrier	301,653 42,912 226,240	SF SF SF	8.00 4.00 1.50	2,413,224 171,648 339,360
Applied exterior finishes Exterior wall finish - curtain wall with spandrel panels Parapets & edge detailing	226,240 554	SF LF	120.00 250.00	27,148,800 138,500
Interior finish to exterior walls Gypsum board, taped and sanded	269,152	SF	3.50	942,032
Windows, glazing and louvers Exterior wall finish - curtain wall with glazing	75,414	SF	120.00	9,049,680
Exterior doors, frames and hardware Glazed Doors & Entrances (allow revolving) Solid Exterior Doors Overhead Doors	12 8 2	EA EA EA	35,000.00 3,000.00 25,000.00	420,000 24,000 50,000 40,697,244
5. Roofing, Waterproofing & Skylights				
Waterproofing Waterproofing at slab on grade Waterproofing at retaining wall Waterproofing membrane under plaza	49,940 42,912 31,750	SF SF SF	10.00 10.00 15.00	499,400 429,120 476,250
Insulation Rigid insulation at roof	18,190	SF	6.00	109,140
Roofing Balconies & accessible roofs High roof	31,750 18,190	SF SF	25.00 12.00	793,750 218,280
—				2,525,940

2,525,940

PEER Tall Buildings Study Steel Structural Option Performance Based Los Angeles, California			<i>N</i>	n Cost Model Iarch 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
6. Interior Partitions, Doors & Glazing				
Partition framing and cores CMU partitions at basement levels Core partitions Standard partitions	400 7,276 50,932	LF LF LF	325.00 90.00 72.00	130,000 654,840 3,667,104
Window walls and borrowed lights	1,020	SF	45.00	45,900
Doors, frames & hardware Interior doors	2,392	EA	2,200.00	5,262,400
-				9,760,244
7. Floor, Wall & Ceiling Finishes				
Floors including base Lobby flooring Core circulation Restrooms Office Special use areas Concrete sealer at basement	5,000 88,000 44,000 584,600 10,000 195,760	SF SF SF SF SF	35.00 6.00 15.00 5.00 10.00 2.00	175,000 528,000 660,000 2,923,000 100,000 391,520
Walls Lobby Core circulation Restroom walls Office Special use areas Paint to concrete and CMU at basement	1 176,000 79,200 1,137,200 33,000 52,512	EA SF SF SF SF	75,000.00 3.00 15.00 1.50 5.00 1.00	75,000 528,000 1,188,000 1,705,800 165,000 52,512
Ceilings Lobby Core circulation Restrooms Office Special use areas Paint to exposed structure at basement	5,000 88,000 44,000 568,600 22,000 199,760	SF SF SF SF SF	25.00 12.00 15.00 5.00 8.00 2.00	125,000 1,056,000 660,000 2,843,000 176,000 399,520

13,751,352

erformance Based .os Angeles, California			- N	1 Cost Mode Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
. Function Equipment & Specialties				
Built in Equipment				
Lobby/entry	1	LS	25,000.00	25,00
Core area	40	EA	18,000.00	720,00
Office areas	584,600	SF	12.00	7,015,20
Restroom areas	44,000	SF	20.00	880,00
Window washing equipment	1	LS	450,000.00	450,00
_				9,090,20
. Stairs & Vertical Transportation				
Stairs				
Regular stair flights	88	EA	22,000.00	1,936,00
Elevators	264	OTOD.	22 000 00	7 202 00
Passenger Elevators, gearless traction Freight Elevators, geared traction, 4 stop		STOP STOP	28,000.00 32,000.00	7,392,00 256,00
_				9,584,00
0. Plumbing Systems				
Sanitary fixtures and connection piping				
Toilets	440	EA	1,600.00	704,00
Urinals	88	EA	1,800.00	158,40
Lavatories	264	EA	1,200.00	316,80
Drinking Fountains and Coolers	44	EA	2,500.00	110,00
	44	EA	1,700.00	74,80
Sinks				
Sinks Hose bibbs	44	EA	500.00	22,00
Hose bibbs Domestic water and distribution			500.00	22,00
Hose bibbs Domestic water and distribution Cold Water Service	44	EA		
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2"	44 1,300	EA LF	50.00	65,00
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2"	44	EA		65,00
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service	44 1,300 13,860	EA LF LF	50.00 32.00	65,00 443,52
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2"	44 1,300 13,860 2,600	EA LF LF LF	50.00 32.00 50.00	65,00 443,52 130,00
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2"	44 1,300 13,860 2,600 27,720	EA LF LF LF	50.00 32.00 50.00 32.00	65,00 443,52 130,00 887,04
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Insulation	44 1,300 13,860 2,600	EA LF LF LF	50.00 32.00 50.00	65,00 443,52 130,00 887,04
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Insulation Valves	44 1,300 13,860 2,600 27,720 30,320	EA LF LF LF LF	50.00 32.00 50.00 32.00 9.00	65,00 443,52 130,00 887,04 272,88
Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Insulation	44 1,300 13,860 2,600 27,720	EA LF LF LF	50.00 32.00 50.00 32.00	22,00 65,00 443,52 130,00 887,04 272,88 80,08

rformance Based s Angeles, California			N	1 Cost Mod Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
Sanitary waste				
Waste & vent pipework-above ground				
Cast Iron No Hub, >6"	1,300	LF	75.00	97,50
Cast Iron No Hub, to 3"	13,860	LF	32.00	443,52
Sanitary waste, vent and service piping Floor Drains	88	EA	1,000.00	88,00
Rain Water Drainage				
Pipe and Fittings	47,609	LF	35.00	1,666,33
Roof/Overflow Drains	83	EA	750.00	62,42
Gas distribution				
Copper piping incl. fittings to 2"	2,000	LF	25.00	50,00
-				5,872,29
Heating, Ventilation & Air Conditioning Heat generating systems				
Heating hot water boilers, high efficiency	10.000			
condensing	43.200	MBTH	25.00	1,080,00
	-		25 000 00	
Heating hot water pumps	2	EA	35,000.00	
	-	EA	35,000.00	
Heating hot water pumps Cooling Generating Systems Cooling towers	-	EA TN	35,000.00 350.00	70,00
Heating hot water pumps Cooling Generating Systems	2 3,000 3,000	TN TN	350.00 550.00	70,00 1,050,00 1,650,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps	2 3,000 3,000 2	TN TN EA	350.00 550.00 30,000.00	70,00 1,050,00 1,650,00 60,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps	2 3,000 3,000	TN TN	350.00 550.00	70,00 1,050,00 1,650,00 60,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation,	2 3,000 3,000 2 2	TN TN EA EA	350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps	2 3,000 3,000 2	TN TN EA	350.00 550.00 30,000.00	70,00 1,050,00 1,650,00 60,00 56,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc.	2 3,000 3,000 2 2	TN TN EA EA	350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water	2 3,000 3,000 2 2 6	TN EA EA EA	350.00 550.00 30,000.00 28,000.00 12,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings	2 3,000 3,000 2 2 6 1,400	TN EA EA EA	350.00 550.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 56,00 72,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties	2 3,000 3,000 2 2 6	TN EA EA EA	350.00 550.00 30,000.00 28,000.00 12,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water	2 3,000 3,000 2 2 6 1,400	TN EA EA EA	350.00 550.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings,	2 3,000 3,000 2 2 6 1,400	TN EA EA EA	350.00 550.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, including insulation	2 3,000 3,000 2 2 6 1,400 1	TN EA EA LF LS	350.00 550.00 30,000.00 28,000.00 12,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 56,00 72,00 133,00 75,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation 6" - 4"	2 3,000 3,000 2 2 6 1,400 1 1,200	TN EA EA LF LS	350.00 550.00 30,000.00 28,000.00 12,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 56,00 72,00 133,00 75,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation 6" - 4" < = 3"	2 3,000 3,000 2 2 6 1,400 1 1,400 1 1,200 36,000	TN EA EA LF LS LF	350.00 550.00 30,000.00 28,000.00 12,000.00 12,000.00 95.00 75,000.00 85.00 30.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00 133,00 75,00 102,00 1,080,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, including insulation 6'' - 4'' < = 3'' Valves and specialties	2 3,000 3,000 2 2 6 1,400 1 1,200	TN EA EA LF LS	350.00 550.00 30,000.00 28,000.00 12,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00 133,00 75,00 102,00 1,080,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, including insulation 6" - 4" < = 3" Valves and specialties Condenser water	2 3,000 3,000 2 2 6 1,400 1 1,400 1 1,200 36,000 1	TN EA EA LF LS LF LS	350.00 550.00 30,000.00 28,000.00 12,000.00 12,000.00 95.00 75,000.00 85.00 30.00 150,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00 133,00 75,00 102,00 1,080,00 150,00
Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, including insulation 6'' - 4'' < = 3'' Valves and specialties	2 3,000 3,000 2 2 6 1,400 1 1,400 1 1,200 36,000	TN EA EA LF LS LF	350.00 550.00 30,000.00 28,000.00 12,000.00 12,000.00 95.00 75,000.00 85.00 30.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00 133,00 75,00 102,00 1,080,00 150,00 108,00 25,00

R Tall Buildings Study Steel Structural Option formance Based Angeles, California			Λ	n Cost Mo Iarch 8, 20 12-01581.1
Item Description	Quantity	Unit	Rate	Total
Air handling equipment				
Air handler units VAV boxes	700,000	CFM	5.00	3,500,0
Core/Shell	294	EA	1,250.00	367,5
Tenant areas, 1 per 600 USF	1,027	EA	1,250.00	1,284,0
Parking area	196	EA	1,250.00	245,0
Sound attenuation - duct mounted	700,000	CFM	0.25	175,0
Air distribution, return and exhaust				
Galvanized sheet metal ductwork	959,110	LB	8.00	7,672,8
Flexible ductwork	36,000	LF	6.00	216,0
Dampers, volume	750	EA	40.00	30,0
Dampers, smoke/fire	80	EA	1,200.00	96,0
Insulation/duct liner	400,000	SF	2.50	1,000,0
Diffusers, registers and grilles				
Ceiling				
Core/Shell	1,470	EA	200.00	294,0
Tenant areas, 1 per 150 USF Parking area	4,109	EA	150.00	616,3
Terminal & Package Units				
Exhaust fans to toilet rooms etc.	1	LS	300,000.00	300,0
Controls and instrumentation				
DDC Control system	959,110	SF	5.00	4,795,5
Test and balance		-		
Test and balance	959,110	SF	1.25	1,198,8
—				28,033,2

12. Electrical Lighting, Power & Communication

Primary Service, Medium voltage Switchgear 13.8KV including (2) tie breakers, (2) feeder breakers, and customer	12.000	KVA	60.00	720.000
Transformer substation 13.8KV/480V,	12,000	ΝVΑ	00.00	720,000
double-ended including secondary	12,000	KVA	150.00	1,800,000
Distribution switchboards - 480V	12,500	AMP	40.00	500,000
Distribution panelboards - 480V	4,000	AMP	25.00	100,000
Transformers 480/120V	3,000	KVA	75.00	225,000
Distribution panelboards - 208V	8,000	AMP	25.00	200,000
Feeder conduit and wire - 600V	2,000	LF	120.00	240,000

R Tall Buildings Study Steel Structural Option ormance Based Angeles, California			<i>N</i>	1 Cost Mode Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
Emergency and Uninterrupted Power				
Emergency Generator	1,500	KVA	350.00	525,00
Automatic transfer switch	1,500	AMP	45.00	67,50
Distribution panelboards	1,500	AMP	25.00	37,50
General Purpose Lighting				
Panelboards	44	EA	2,500.00	110,00
Lighting				
Core Area	147,000	SF	12.00	1,764,00
Tenant Area	616,350	SF	6.00	3,698,10
Parking area	195,760	SF	4.00	783,04
Machine and Equipment Power Connections and switches including conduit				
and wire	40		1 000 00	10.00
Elevators	16	EA	1,000.00	16,00
Cooling towers	2	EA	5,000.00	10,00
Chillers	2	EA	12,000.00	24,00
Pumps	6	EA	2,000.00	12,00
Miscellaneous connections	959,110	SF	0.75	719,33
User Convenience Power				
Panelboards	88	EA	2,500.00	220,00
Receptacles				
Core/Shell	147,000	SF	3.00	441,00
Tenant Area	616,350	SF	5.00	3,081,75
Parking area	195,760	SF	2.00	391,52
Communications				
Telephone and communications				
Core Area, panels and backbone only	1	LS	75,000.00	75,00
Tenant Area	616,350	SF	3.00	1,849,05
Security Systems		<u> </u>		
Security System	959,110	SF	2.00	1,918,22
Fire Alarm Systems		~-	-	
Fire Alarm Systems	959,110	SF	3.00	2,877,33
Other Electrical Systems		•-		
Grounding Systems	959,110	SF	0.25	239,77
Lightning protection	1	LS	25,000.00	25,00

22,670,120

PEER Tall Buildings Study Steel Structural Option Performance Based Los Angeles, California			N	1 Cost Model Iarch 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
13. Fire Protection Systems				
Sprinkler and Standpipe Systems Fire Protection Sprinkler Systems Standpipe and Hose Systems	959,110 959,110	SF SF	4.00 1.00	3,836,440 959,110
Specialties and Other Systems Smoke Evacuation	1	LS	250,000.00	250,000
_				5,045,550
14. Site Preparation & Building Demolition				
Site Preparation	100,000	SF	15.00	1,500,000
				1,500,000
15. Site Paving, Structures & Landscaping				
Site Development	50,060	SF	25.00	1,251,500
_				1,251,500
16. Utilities on Site				
Site Utilities	1	LS	500,000.00	500,000
—				500,000

PERFORMANCE BASED PLUS COMPONENT SUMMARY

FERFORMANCE BASED FLUS COMFONENT SOMMAR	Gross Area:	959.110 SF	
		\$/SF	\$x1,000
1. Foundations		17.93	17,193
2. Vertical Structure		52.90	50,733
3. Floor & Roof Structures		25.87	24,814
4. Exterior Cladding		42.43	40,697
5. Roofing, Waterproofing & Skylights		2.63	2,526
Shell (1-5)		141.76	135,964
6. Interior Partitions, Doors & Glazing		10.18	9,760
7. Floor, Wall & Ceiling Finishes		14.34	13,751
Interiors (6-7)		24.51	23,512
8. Function Equipment & Specialties		8.77	8,410
9. Stairs & Vertical Transportation		9.99	9,584
Equipment & Vertical Transportation (8-9)		18.76	17,994
10. Plumbing Systems		6.12	5,872
11. Heating, Ventilating & Air Conditioning		29.23	28,033
12. Electric Lighting, Power & Communications		23.64	22,670
13. Fire Protection Systems		5.26	5,046
Mechanical & Electrical (10-13)		64.25	61,621
Total Building Construction (1-13)		249.28	239,091
14. Site Preparation & Demolition		1.56	1,500
15. Site Paving, Structures & Landscaping		1.30	1,252
16. Utilities on Site		0.52	500
Total Site Construction (14-16)		3.39	3,252
TOTAL BUILDING & SITE (1-16)		252.67	242,343
General Conditions	12.00%	30.32	29,081
Contractor's Overhead & Profit or Fee	6.00%	16.98	16,285
PLANNED CONSTRUCTION COST	March 2010	299.97	287,709
Design, Management and Inspection	20.00%	60.00	57,542
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET	March 2010	359.97	345,251

PEER Tall Buildings Study Steel Structural Option Performance Based Plus Los Angeles, California				n Cost Mode March 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
1. Foundations				
Mass excavation				
Excavate for basement and Mat foundation	136,085	CY	15.00	2,041,275
Shoring at perimeter	51,852	SF	50.00	2,592,600
Backfill with imported material	28,807	CY	35.00	1,008,233
Dispose off site	136,085	CY	20.00	2,721,70
Hazardous material remediation				
Foundations				
Reinforced concrete Mat foundation, 10'-0"	49,940	SF	175.00	8,739,50
Elevator pits	6	EA	15,000.00	90,00
_				17,193,30
2. Vertical Structure				
Columns and pilasters				
Wide flange	1,117	ΤN	4,000.00	4,468,00
Box columns				
Metal plate frame	4,980	ΤN	6,000.00	29,880,00
Studs- 3/4" diameter, 6" long	90,144	EA	60.00	5,408,64
Concrete fill	2,687	CY	450.00	1,209,15
Sprayed fireproofing	1,117	ΤN	350.00	390,95
Diagonal reinforcing				
Buckling restraint braces				
950 k	192	LF	225.00	43,20
703 k	1,458	LF	180.00	262,44
665 k	192	LF	180.00	34,56
589 k	592	LF	150.00	88,80
513 k	926	LF	150.00	138,90
456 k	6,292	LF	150.00	943,80
418 k	8,912	LF	120.00	1,069,440
380 k	880	LF	120.00	105,600
342 k	228	LF	120.00	27,360
304 k	480	LF	120.00	57,600
266 k	1,252	LF	100.00	125,200
Brace connections				
Gusset plates		_		
3/4" thick plate steel welded connection	128	EA	1,500.00	192,000
1" thick plate steel welded connection	2,040	EA	2,000.00	4,080,000
2" thick plate steel welded connection	16	EA	4,000.00	64,000

PEER Tall Buildings Study Steel Structural Option Performance Based Plus Los Angeles, California				n Cost Model Iarch 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
Concrete retaining walls 18" Concrete retaining wall Formwork to one side Reinforcing steel Concrete 24" Concrete retaining wall Formwork to one side	21,456 283,824 1,311 21,456	SF LBS CY SF	15.00 1.15 225.00 15.00	321,840 326,398 294,975 321,840
Reinforcing steel Concrete	422,059 1,748	LBS CY	1.15 225.00	485,368 393,300
_				50,733,360
3. Floor and Roof Structure				
Floor at lowest level Slab on grade - See foundations (mat slab)				
Suspended floors Wide flange framing Channel and angle ledger 3" formlock deck, 18 ga. 3 1/4" lightweight concrete Sprayed fireproofing	3,218 101,965 859,230 859,230 3,218	TN LBS SF SF TN	4,000.00 2.50 4.50 5.00 350.00	12,872,000 254,913 3,866,535 4,296,150 1,126,300
Plaza level slab/roof Wide flange framing Channel and angle ledger 3" formlock deck, 16 ga. 9" normal weight concrete Sprayed fireproofing	311 33,988 49,940 49,940 311	TN LBS SF SF TN	4,000.00 2.50 4.50 5.00 350.00	1,244,000 84,970 224,730 249,700 108,850
High roof Wide flange framing 3" formlock deck, 18 ga. 3 1/4" lightweight concrete Sprayed fireproofing	72 18,190 18,190 72	TN SF SF TN	4,000.00 4.50 5.00 350.00	288,000 81,855 90,950 25,200
_				

24,814,153

EER Tall Buildings Study Steel Structural Option erformance Based Plus os Angeles, California			/	n Cost Mode March 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
. Exterior Cladding				
Wall framing, furring and insulation				
Exterior wall framing	301,653	SF	8.00	2,413,224
Furring to interior face of retaining wall	42,912	SF	4.00	171,648
Insulation and vapor barrier	226,240	SF	1.50	339,360
Applied exterior finishes				
Exterior wall finish - curtain wall with				
spandrel panels	226,240	SF	120.00	27,148,800
Parapets & edge detailing	554	LF	250.00	138,500
Interior finish to exterior walls				
Gypsum board, taped and sanded	269,152	SF	3.50	942,032
Windows, glazing and louvers				
Exterior wall finish - curtain wall with glazing	75,414	SF	120.00	9,049,680
Exterior doors, frames and hardware				
Glazed Doors & Entrances (allow revolving)	12	EA	35,000.00	420,000
Solid Exterior Doors	8	EA	3,000.00	24,000
Overhead Doors	2	EA	25,000.00	50,000
_				40,697,244
Roofing, Waterproofing & Skylights				
Waterproofing				
Waterproofing at slab on grade	49,940	SF	10.00	499,400
Waterproofing at retaining wall	42,912	SF	10.00	429,120
Waterproofing membrane under plaza	31,750	SF	15.00	476,250
Insulation				
Rigid insulation at roof	18,190	SF	6.00	109,140
Roofing				
Balconies & accessible roofs	31,750	SF	25.00	793,750
High roof	18,190	SF	12.00	218,280
_				2,525,940

		<i>N</i>	n Cost Model Iarch 8, 2010 12-01581.110
Quantity	Unit	Rate	Total
400 7,276 50,932	LF LF LF	325.00 90.00 72.00	130,000 654,840 3,667,104
1,020	SF	45.00	45,900
2,392	EA	2,200.00	5,262,400
			9,760,244
5,000 88,000 44,000 584,600 10,000 195,760	SF SF SF SF SF	35.00 6.00 15.00 5.00 10.00 2.00	175,000 528,000 660,000 2,923,000 100,000 391,520
1 176,000 79,200 1,137,200 33,000 52,512	EA SF SF SF SF	75,000.00 3.00 15.00 1.50 5.00 1.00	75,000 528,000 1,188,000 1,705,800 165,000 52,512
5,000 88,000 44,000 568,600 22,000 199,760	SF SF SF SF SF	25.00 12.00 15.00 5.00 8.00 2.00	125,000 1,056,000 660,000 2,843,000 176,000 399,520
	400 7,276 50,932 1,020 2,392 5,000 88,000 44,000 584,600 10,000 195,760 1 176,000 79,200 1,137,200 33,000 52,512 5,000 88,000 44,000 568,600 22,000	400 LF 7,276 LF 50,932 LF 1,020 SF 2,392 EA 2,392 EA 5,000 SF 88,000 SF 44,000 SF 10,000 SF 195,760 SF 195,760 SF 195,760 SF 1,137,200 SF 1,137,200 SF 33,000 SF 33,000 SF 52,512 SF 568,600 SF 22,000 SF	Quantity Unit Rate 400 LF 325.00 7,276 LF 90.00 50,932 LF 72.00 1,020 SF 45.00 2,392 EA 2,200.00 584,600 SF 5.00 10,000 SF 10.00 195,760 SF 2.00 1 EA 75,000.00 176,000 SF 3.00 195,760 SF 2.00 1 EA 75,000.00 176,000 SF 3.00 195,760 SF 2.00 1 EA 75,000.00 1,137,200 SF 1.50 33,000 SF 5.00 5,000 SF 1.00 5,000 SF 1.00 5,000 SF 1.50 33,000 SF 1.50 33,000 SF 1.50 5,000 SF 5.00

13,751,352

os Angeles, California			- N	1 Cost Mode Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
. Function Equipment & Specialties				
Built in Equipment	4			25.00
Lobby/entry	1	LS	25,000.00	25,00
Core area	40	EA	18,000.00	720,00
Office areas	584,600	SF	12.00	7,015,20
Restroom areas	10,000 1	SF LS	20.00	200,00
Window washing equipment	I	LO	450,000.00	450,00
				8,410,20
. Stairs & Vertical Transportation				
Stairs				
Regular stair flights	88	EA	22,000.00	1,936,00
Elevators	264	STOP	28,000.00	7,392,00
Passenger Elevators, gearless traction Freight Elevators, geared traction, 4 stop		STOP	32,000.00	256,00
				9,584,00
0. Plumbing Systems				
 Plumbing Systems Sanitary fixtures and connection piping 				
Sanitary fixtures and connection piping Toilets	440	EA	1,600.00	,
Sanitary fixtures and connection piping Toilets Urinals	88	EA	1,800.00	158,40
Sanitary fixtures and connection piping Toilets Urinals Lavatories	88 264	EA EA	1,800.00 1,200.00	158,40 316,80
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers	88 264 44	EA EA EA	1,800.00 1,200.00 2,500.00	158,40 316,80 110,00
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks	88 264 44 44	EA EA EA EA	1,800.00 1,200.00 2,500.00 1,700.00	158,40 316,80 110,00 74,80
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers	88 264 44	EA EA EA	1,800.00 1,200.00 2,500.00	158,40 316,80 110,00 74,80
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution	88 264 44 44	EA EA EA EA	1,800.00 1,200.00 2,500.00 1,700.00	158,40 316,80 110,00 74,80
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service	88 264 44 44 44	EA EA EA EA	1,800.00 1,200.00 2,500.00 1,700.00 500.00	158,40 316,80 110,00 74,80 22,00
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2"	88 264 44 44 44 44	EA EA EA EA	1,800.00 1,200.00 2,500.00 1,700.00 500.00	158,40 316,80 110,00 74,80 22,00
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2"	88 264 44 44 44	EA EA EA EA	1,800.00 1,200.00 2,500.00 1,700.00 500.00	158,40 316,80 110,00 74,80 22,00
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service	88 264 44 44 44 44 1,300 13,860	EA EA EA EA LF	1,800.00 1,200.00 2,500.00 1,700.00 500.00 500.00 32.00	158,40 316,80 110,00 74,80 22,00 65,00 443,52
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2"	88 264 44 44 44 44 1,300 13,860 2,600	EA EA EA EA LF LF	1,800.00 1,200.00 2,500.00 1,700.00 500.00 50.00 32.00 50.00	158,40 316,80 110,00 74,80 22,00 65,00 443,52 130,00
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings >2"	88 264 44 44 44 44 1,300 13,860 2,600 27,720	EA EA EA EA LF LF LF	1,800.00 1,200.00 2,500.00 1,700.00 500.00 500.00 32.00 50.00 32.00	158,40 316,80 110,00 74,80 22,00 65,00 443,52 130,00 887,04
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service	88 264 44 44 44 44 1,300 13,860 2,600	EA EA EA EA LF LF	1,800.00 1,200.00 2,500.00 1,700.00 500.00 50.00 32.00 50.00	158,40 316,80 110,00 74,80 22,00 65,00 443,52 130,00 887,04
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings >2"	88 264 44 44 44 44 1,300 13,860 2,600 27,720 30,320	EA EA EA EA LF LF LF	1,800.00 1,200.00 2,500.00 1,700.00 500.00 500.00 32.00 50.00 32.00	158,40 316,80 110,00 74,80 22,00 65,00 443,52 130,00 887,04 272,88
Sanitary fixtures and connection piping Toilets Urinals Lavatories Drinking Fountains and Coolers Sinks Hose bibbs Domestic water and distribution Cold Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Hot Water Service Copper piping incl. fittings >2" Copper piping incl. fittings to 2" Insulation Valves	88 264 44 44 44 44 1,300 13,860 2,600 27,720	EA EA EA EA LF LF LF LF	$ \begin{array}{r} 1,800.00 \\ 1,200.00 \\ 2,500.00 \\ 1,700.00 \\ 500.00 \\ 500.00 \\ 32.00 \\ 50.00 \\ 32.00 \\ 9.00 \\ \end{array} $	704,00 158,40 316,80 110,00 74,80 22,00 65,00 443,52 130,00 887,04 272,88 80,08

ER Tall Buildings Study Steel Structural Option rformance Based Plus s Angeles, California			N	1 Cost Mode Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
Sanitary waste				
Waste & vent pipework-above ground				
Cast Iron No Hub, >6"	1,300	LF	75.00	97,50
Cast Iron No Hub, to 3"	13,860	LF	32.00	443,52
Sanitary waste, vent and service piping Floor Drains	88	EA	1,000.00	88,00
Rain Water Drainage				
Pipe and Fittings	47,609	LF	35.00	1,666,33
Roof/Overflow Drains	83	EA	750.00	62,42
Gas distribution Copper piping incl. fittings to 2"	2,000	LF	25.00	50,00
	2,000	LI	23.00	
				5,872,29
Heating, Ventilation & Air Conditioning				
Heat generating systems				
Heating hot water boilers, high efficiency	40,000		05.00	4 000 00
condensing	43,200		25.00	
	43,200 2	MBTH EA	25.00 35,000.00	
condensing Heating hot water pumps				
condensing				70,00
condensing Heating hot water pumps Cooling Generating Systems	2	EA	35,000.00	70,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers	2 3,000 3,000 2	EA TN TN EA	35,000.00 350.00 550.00 30,000.00	70,00 1,050,00 1,650,00 60,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps	2 3,000 3,000	EA TN TN	35,000.00 350.00 550.00	70,00 1,050,00 1,650,00 60,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation,	2 3,000 3,000 2 2	EA TN TN EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps	2 3,000 3,000 2	EA TN TN EA	35,000.00 350.00 550.00 30,000.00	70,00 1,050,00 1,650,00 60,00 56,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc.	2 3,000 3,000 2 2	EA TN TN EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation	2 3,000 3,000 2 2	EA TN TN EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00	70,00 1,050,00 1,650,00 60,00 56,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water	2 3,000 3,000 2 2 6	EA TN EA EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00 12,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings	2 3,000 3,000 2 2 6 1,400	EA TN EA EA EA	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties	2 3,000 3,000 2 2 6	EA TN EA EA EA	35,000.00 350.00 550.00 30,000.00 28,000.00 12,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water	2 3,000 3,000 2 2 6 1,400	EA TN EA EA EA	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings,	2 3,000 3,000 2 2 6 1,400	EA TN EA EA EA	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation	2 3,000 3,000 2 2 6 1,400 1	EA TN EA EA LF LS	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 56,00 72,00 133,00 75,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation 6" - 4"	2 3,000 3,000 2 2 6 1,400 1 1,200	EA TN EA EA LF LS	35,000.00 350.00 30,000.00 28,000.00 12,000.00 12,000.00 75,000.00	70,00 1,050,00 1,650,00 56,00 72,00 133,00 75,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation 6" - 4" < = 3"	2 3,000 3,000 2 2 6 1,400 1	EA TN EA EA LF LS	35,000.00 350.00 30,000.00 28,000.00 12,000.00 95.00 75,000.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00 133,00 75,00 102,00 1,080,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation 6" - 4"	2 3,000 3,000 2 2 6 1,400 1 1,200 36,000	EA TN EA EA LF LS LF	35,000.00 350.00 30,000.00 28,000.00 12,000.00 12,000.00 75,000.00 85.00 30.00	70,00 1,050,00 1,650,00 56,00 72,00 133,00 75,00 102,00 1,080,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water Heating hot water pipework, fittings, including insulation 6'' - 4''' < = 3'' Valves and specialties	2 3,000 3,000 2 2 6 1,400 1 1,200 36,000	EA TN EA EA LF LS LF	35,000.00 350.00 30,000.00 28,000.00 12,000.00 12,000.00 75,000.00 85.00 30.00	70,00 1,050,00 1,650,00 60,00 56,00 72,00 133,00 75,00 102,00 1,080,00 150,00
condensing Heating hot water pumps Cooling Generating Systems Cooling towers Chillers, 2 each Chilled water pumps Condenser water pumps Condenser water pumps Variable speed drives, vibration isolation, etc. Distribution systems Piping, fittings, valves and insulation Chilled water Chilled water pipework, fittings Valves and specialties Heating hot water pipework, fittings, including insulation 6'' - 4'' < = 3'' Valves and specialties Condenser water	2 3,000 3,000 2 2 6 1,400 1 1,400 1 1,200 36,000 1	EA TN EA EA LF LS LF LS	35,000.00 350.00 30,000.00 28,000.00 12,000.00 12,000.00 95.00 75,000.00 85.00 30.00 150,000.00	1,080,00 70,00 1,050,00 1,650,00 60,00 56,00 72,00 133,00 75,00 102,00 1,080,00 150,00 108,00 25,00

R Tall Buildings Study Steel Structural Option ormance Based Plus Angeles, California			Λ	n Cost Mode Aarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
Air handling equipment				
Air handler units VAV boxes	700,000	CFM	5.00	3,500,000
Core/Shell	294	EA	1,250.00	367,50
Tenant areas, 1 per 600 USF	1,027	EA	1,250.00	1,284,06
Parking area	196	EA	1,250.00	245,00
Sound attenuation - duct mounted	700,000	CFM	0.25	175,00
Air distribution, return and exhaust				
Galvanized sheet metal ductwork	959,110	LB	8.00	7,672,88
Flexible ductwork	36,000	LF	6.00	216,00
Dampers, volume	750	EA	40.00	30,00
Dampers, smoke/fire	80	EA	1,200.00	96,00
Insulation/duct liner	400,000	SF	2.50	1,000,00
Diffusers, registers and grilles				
Ceiling				
Core/Shell	1,470	EA	200.00	294,00
Tenant areas, 1 per 150 USF	4,109	EA	150.00	616,35
Parking area				
Terminal & Package Units				
Exhaust fans to toilet rooms etc.	1	LS	300,000.00	300,00
Controls and instrumentation				
DDC Control system	959,110	SF	5.00	4,795,55
Test and balance				
Test and balance	959,110	SF	1.25	1,198,88
—				28,033,26

12. Electrical Lighting, Power & Communication

Primary Service, Medium voltage Switchgear 13.8KV including (2) tie				
breakers, (2) feeder breakers, and customer	12,000	KVA	60.00	720,000
Transformer substation 13.8KV/480V,				
double-ended including secondary	12,000	KVA	150.00	1,800,000
Distribution switchboards - 480V	12,500	AMP	40.00	500,000
Distribution panelboards - 480V	4,000	AMP	25.00	100,000
Transformers 480/120V	3,000	KVA	75.00	225,000
Distribution panelboards - 208V	8,000	AMP	25.00	200,000
Feeder conduit and wire - 600V	2,000	LF	120.00	240,000

R Tall Buildings Study Steel Structural Option ormance Based Plus Angeles, California			<i>N</i>	n Cost Mode Iarch 8, 201 12-01581.11
Item Description	Quantity	Unit	Rate	Total
Emergency and Uninterrupted Power				
Emergency Generator	1,500	KVA	350.00	525,000
Automatic transfer switch	1,500	AMP	45.00	67,50
Distribution panelboards	1,500	AMP	25.00	37,50
General Purpose Lighting				
Panelboards	44	EA	2,500.00	110,00
Lighting			·	
Core Area	147,000	SF	12.00	1,764,00
Tenant Area	616,350	SF	6.00	3,698,10
Parking area	195,760	SF	4.00	783,04
Machine and Equipment Power Connections and switches including conduit				
and wire				
	16	EA	1 000 00	16.00
Elevators			1,000.00	16,00
Cooling towers	2	EA	5,000.00	10,00
Chillers	2	EA	12,000.00	24,00
Pumps	6	EA	2,000.00	12,00
Miscellaneous connections	959,110	SF	0.75	719,33
User Convenience Power				
Panelboards	88	EA	2,500.00	220,00
Receptacles				
Core/Shell	147,000	SF	3.00	441,00
Tenant Area	616,350	SF	5.00	3,081,75
Parking area	195,760	SF	2.00	391,52
Communications				
Telephone and communications				
Core Area, panels and backbone only	1	LS	75,000.00	75,00
Tenant Area	616,350	SF	3.00	1,849,05
Security Systems				
Security System	959,110	SF	2.00	1,918,22
Fire Alarm Systems				
Fire Alarm Systems	959,110	SF	3.00	2,877,33
Other Electrical Systems		<u> </u>	0.07	
Croupding Cystems	959,110	SF	0.25	239,77
Grounding Systems Lightning protection	1	LS	25,000.00	25,00

22,670,120

PEER Tall Buildings Study Steel Structural Option Performance Based Plus Los Angeles, California			- M	n Cost Model Iarch 8, 2010 12-01581.110
Item Description	Quantity	Unit	Rate	Total
13. Fire Protection Systems				
Sprinkler and Standpipe Systems Fire Protection Sprinkler Systems Standpipe and Hose Systems	959,110 959,110	SF SF	4.00 1.00	3,836,440 959,110
Specialties and Other Systems Smoke Evacuation	1	LS	250,000.00	250,000
_				5,045,550
14. Site Preparation & Building Demolition				
Site Preparation	100,000	SF	15.00	1,500,000
—				1,500,000
15. Site Paving, Structures & Landscaping				
Site Development	50,060	SF	25.00	1,251,500
_				1,251,500
16. Utilities on Site				
Site Utilities	1	LS	500,000.00	500,000
_				500,000